

REMARKS

Claims 1 – 17 were previously pending in this application. No claims are amended, and no claims are canceled. New claims 18 – 21 have been added. As a result, claims 1 – 21 are pending for examination with claims 1 and 9 being independent claims. No new matter has been added. Support for the new claims is found, for example, at paragraph 60 and Figure 6A of the application as filed.

Rejections Under 35 U.S.C. §103

The Office Action rejected claims 1 – 6 and 9 – 15 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,441,558 (“Muthu”) in view of U.S. Patent No. 7,071,616 (“Shimizu”). Applicant respectfully disagrees with this rejection for at least the reasons described below.

Claim 1 recites, in part, “wherein the one or more first colour light-emitting elements and the one or more second colour light-emitting elements are arranged in relationship with the one or more white light-emitting elements to provide the second white light having the desired correlated colour temperature when the light generated by the light module, including the first white light having the particular colour correlated temperature is extracted and mixed.”

The Examiner acknowledges and Applicant agrees that Muthu does “not clearly disclose that... the one or more first colour light-emitting elements and the one or more second colour light-emitting elements are arranged in relationship with the one or more white light-emitting elements to provide the second white light having the desired correlated colour temperature when the light generated by the light module, including the first white light having the particular colour correlated temperature is extracted and mixed,” as recited in claim 1. (Office Action, page 4.)

Applicant respectfully asserts that Shimizu does not cure the infirmities of Muthu. Instead, Shimizu teaches a light emitting diode, and states: “The light emitting diode of the present invention can be used to constitute an LED display device wherein one pixel is constituted of three RGB light emitting diodes and one light emitting diode of the present invention, as in FIG. 12.” (Column 22, lines 13 – 16; Figure 12.)

Further, Shimizu teaches that the “brightness of display can be improved by adding the white light emitting diode to the RGB light emitting diodes. When RGB light emitting diodes are combined to display white light, one or two of the RGB colors may be enhanced resulting in

a failure to display pure white depending on the viewing angle, such a problem is solved by adding the white light emitting diode as in this display device.” (Column 22, lines 39 – 46.) Thus, Shimizu teaches a pixel where a white light emitting diode is added to three RGB light emitting diodes to improve the “brightness of display.” (Id.)

Applicant respectfully asserts that the mere teaching of a combination of a single white LED with RGB LEDs to improve brightness does not teach or suggest first and second colour light emitting elements that “are arranged in relationship with the one or more white light-emitting elements to provide the second white light having the desired correlated colour temperature when the light generated by the light module, including the first white light having the particular colour correlated temperature is extracted and mixed” as recited in claim 1. Shimizu illustrates a single configuration but says nothing about the relative arrangement between the RGB and white light emitting diodes, and consequently, does not teach or suggest any arrangement of these elements in order to provide white light of a desired correlated colour temperature as recited in claim 1.

Thus, Shimizu offers no teaching or suggestion that the relative arrangement of the color and white LED’s is in any way responsible for providing second white light having a desired correlated colour temperature. Shimizu also teaches that “such a configuration as white light emitting diodes are arranged on a substrate wherein a conductive pattern is formed. A circuit of light emitting diodes wherein such light emitting diodes are connected in series or parallel is handled as a set of light emitting diodes.” (Column 22, lines 62 – 67; See also Figure 10 and Figure 12.) However, the preceding teaches an electrical arrangement where the LEDs are electrically coupled to form a circuit. These series or parallel electrical connections do not teach or suggest arranging light sources in any physical relationship with each other to provide the second white light having the desired correlated colour temperature as recited in claim 1. The electrical characteristics of the circuit configuration of Shimizu are unrelated to any physical arrangement of the color and white LEDs of Shimizu relative to one another, and do not teach or suggest any arrangement between these LEDs in order to provide second white light having a desired color temperature. Accordingly, Shimizu does not teach or suggest the above recited element of claim 1.

Independent claim 9 recites in part “arranging the one or more first colour light-emitting elements and the one or more second colour light-emitting elements in relationship with the one or more white light-emitting elements to generate the mixed white light having the desired

correlated colour temperature when the first coloured light, the second coloured light, and the first white light are mixed.”

As is apparent from the above, neither Muthu nor Shimizu alone or in proper combination teach or suggest “arranging the one or more first colour light-emitting elements and the one or more second colour light-emitting elements in relationship with the one or more white light-emitting elements to generate the mixed white light having the desired correlated colour temperature” as recited in claim 9. Each of claims 1 and 9 is allowable for at least the above reasons, respectively. Claims 2 – 6 and 10 – 15 each depend from one of the allowable independent claims and are therefore patentable for at least the same reasons as the independent claim from which they depend, respectively. Accordingly, reconsideration and withdrawal of the rejection of claims 1 – 6 and 9 – 15 under 35 U.S.C. §103(a) is respectfully requested.

The Office Action rejected claims 7 – 8 and 16 – 17 under 35 U.S.C. §103(a) as being unpatentable over Muthu in view of Shimizu, and further in view of U.S. Patent No. 6,488,390 (“Lebens”). Applicant respectfully disagrees with this rejection.

Claim 7 – 8 depend from independent claim 1 and claims 16 – 17 depend from independent claim 9. The deficiencies of Muthu and Shimizu concerning claims 1 and 9 are described above.

Lebens does not cure the infirmities of Muthu and Shimizu. Lebens teaches a color adjusted flashlight having LEDs made from a material such as indium gallium nitride. (Abstract and column 6, lines 45 – 49.) The LEDs of Lebens are either white LEDs that yield a white appearing light output (column 9, line 49 – 52) or standard colored LEDs of red, yellow, green, and/or blue, with each colored LED controlled separately to provide combined white light from the colored LED sources (column 9, lines 55 – 60). Thus, Lebens teaches that white light is provided by either a white LED that yields white appearing light, or by separately controlling colored LED sources to provide white light. However, the white light produced in Lebens is not further mixed with any other light sources to provide a second white light.

At least because Lebens does not provide a second white light, Lebens either alone or in proper combination with Muthu and Shimizu also does not teach or suggest “wherein the one or more first colour light-emitting elements and the one or more second colour light-emitting elements are arranged in relationship with the one or more white light-emitting elements to provide the second white light having the desired correlated colour temperature when the light

generated by the light module, including the first white light having the particular colour correlated temperature is extracted and mixed” as recited in claim 1. Further, Lebens either alone or in proper combination with Muthu and Shimizu also does not teach or suggest “arranging the one or more first colour light-emitting elements and the one or more second colour light-emitting elements in relationship with the one or more white light-emitting elements to generate the mixed white light having the desired correlated colour temperature when the first coloured light, the second coloured light, and the first white light is mixed” as recited in claim 9.

Accordingly, each of claims 7, 8, 16, and 17 are patentable for at least the same reasons as the independent claim from which they depend, respectively, and reconsideration and withdrawal of the rejection of claims 7, 8, 16, and 17 under 35 U.S.C. §103(a) is respectfully requested.

General Comments on Dependent Claims

Since each of the rejected dependent claims depends from a base claim that is believed to be in condition for allowance, Applicant believes that it is unnecessary at this time to argue the allowability of each of the dependent claims individually. However, Applicant does not necessarily concur with the interpretation of the rejected dependent claims as set forth in the Office Action, nor does Applicant concur that the basis for the rejection of any of the dependent claims is proper. Therefore, Applicant reserves the right to specifically address the patentability of the dependent claims in the future, if deemed necessary. Further, each dependent claim is patentable at least for the same reasons as the independent claim from which they depend.

New claims 18 – 21

Claim 18

New dependent claim 18 depends from independent claim 9 and is allowable for at least the reasons pointed out above with respect to claim 9.

Claim 19

New dependent claim 19 recites “positioning the one or more first colour light-emitting elements and the one or more second colour light-emitting elements in a substantially central relationship with the plurality of white light-emitting elements to generate the mixed white light.”

First, dependent claim 19 depends from independent claim 9 and is allowable for the reasons pointed out above with respect to claim 9, from which this claim depends.

Second, none of Muthu, Shimizu, and Lebens teach or suggest this claim element. The Office Action acknowledges that Muthu does not disclose first and second colour light emitting elements arranged in relationship with the one or more light emitting element to provide the second white light. (Office Action, page 4.) Accordingly, Muthu does not disclose the above element as recited in claim 19.

Shimizu does not cure this deficiency of Muthu. Shimizu teaches that “[t]he light emitting diode of the present invention can be used to constitute an LED display device wherein one pixel is constituted of three RGB light emitting diodes and one light emitting diode of the present invention, as in FIG. 12.” (Column 22, lines 13 – 16; Figure 12, emphasis added.) The single white light emitting diode of Shimizu does not teach or suggest a plurality of white light-emitting elements as recited in claim 19. This is further illustrated in Figure 12 of Shimizu, where: 1) the color RGB LEDs are peripheral, rather than central, to one white LED; and 2) there is only one white LED per pixel. Further, RGB light emitting diodes cannot possibly be positioned in a substantially central relationship with a single white LED.

Lebens also does not cure this deficiency. As noted above, Lebens does not teach or suggest to provide a second white light, and accordingly does not teach or suggest any positioning between first and second colour light-emitting elements and a plurality of white light-emitting elements to provide the second white light.

MPEP 2143.03 instructs that all limitations of a claim must be considered and given weight. Because none of Muthu, Shimizu, and Lebens teach or suggest the above recited element of claim 19, Applicant respectfully submits that no combination of any of the cited documents can possibly form a basis for rejecting claim 19 and that this claim is therefore allowable at least for this additional reason.

Claim 20

New dependent claim 20 depends from independent claim 1 and is allowable for the reasons pointed out above with respect to claim 1.

Claim 21

New dependent claim 21 recites “wherein the one or more first colour light-emitting elements and the one or more second colour light-emitting elements are positioned in a

substantially central relationship with the plurality of white light-emitting elements to provide the second white light”

First, dependent claim 21 depends from independent claim 1 and is allowable for the reasons pointed out above with respect to claim 1.

Second, none of Muthu, Shimizu, and Lebens teach or suggest this claim element. As mentioned above, the Office Action acknowledges that Muthu does not disclose white light emitting elements. (Office Action, page 4.) Accordingly, Muthu does not teach the above element as recited in claim 21.

As also mentioned above, Shimizu does not cure this deficiency of Muthu because the single white light emitting diode of Shimizu does not teach or suggest a plurality of white light-emitting elements as recited in claim 21. Further, RGB light emitting diodes cannot possibly be positioned in a substantially central relationship with a single white LED.

Lebens also does not cure this deficiency. Lebens does not teach or suggest to provide a second white light, and accordingly does not teach or suggest the above recited element of claim 21.

MPEP 2143.03 instructs that all limitations of a claim must be considered and given weight. Because none of Muthu, Shimizu, and Lebens teach or suggest the above recited element of claim 21, Applicant respectfully submits that no combination of any of the cited documents can possibly form a basis for rejecting claim 21 and that this claim is therefore allowable at least for this additional reason.

CONCLUSION

It is respectfully believed that all of the rejections, objections, or comments set forth in the Office Action have been addressed. However, the absence of a reply to a specific rejection, objection, or comment set forth in the Office Action does not signify agreement with or concession of that rejection, objection, or comment. In addition, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Furthermore, nothing in this paper should be construed as intent to concede any issue with regard to any claim.

In view of the foregoing amendments and remarks, reconsideration is respectfully requested. This application should now be in condition for allowance; a notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney, Mark L. Beloborodov, Esq. at (781) 418-9363 to discuss any outstanding issues relating to the allowability of the application.

Respectfully submitted,
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